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A Component Analysis of Implementation Planning: Examining Mechanisms That Underlie a Teacher Implementation Support Strategy

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A COMPONENT ANALYSIS OF IMPLEMENTATION PLANNING: EXAMINING MECHANISMS THAT UNDERLIE A TEACHER IMPLEMENTATION SUPPORT STRATEGY

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Table of Contents

Illustrations iii

Abstract iv

Introduction 1
- Disruptive Student Behaviors 3
- Teacher Preparedness and Observed Classroom Management Practices 7
- Effective Classroom Management 11
- Supporting Teacher Implementation 16
- Implementation Planning 20
- Purpose of Current Research 24

General Methods 26
- Participants and Settings 26
- Independent Variables 27
- Dependent Variables 29
- Observation Frequency and Duration 31
- Interobserver Agreement 31
- Data Analysis 32

Study 1 – Coping Planning First 34
- Participants 34
- Design and Procedure 35
- Results 38

Study 2 – Action Planning First 41
- Participants 41
- Design and Procedure 42
- Results 42

General Discussion 46
- Limitations and Future Directions 55
- Conclusion 57

References 59

Appendix A: IRB Approval 67

Appendix B: Systematic Direct Observation Form 68

Vita 69

Illustrations

Tables

1. Study 1 Participant Demographics..... 34

2. Study 1 Classroom Demographics..... 35

3. Study 1 Average IPI and Classroom Academic Engagement Across Phases..... 40

4. Study 2 Participant Demographics..... 41

5. Study 2 Classroom Demographics..... 42

6. Study 2 Average IPI and Classroom Academic Engagement Across Phases..... 45

Figures

1. Study 1 Good Behavior Game Implementation and Student Academic Engagement..... 39

2. Study 2 Good Behavior Game Implementation and Student Academic Engagement..... 44

Abstract

To maximize instructional time, teachers must be able to effectively manage student behavior. However, surveys consistently reveal that a significant portion of teachers feel underprepared to address challenging classroom behavior. One of the most effective ways to reduce problem behaviors in school is with systematic classroom management strategies, such as the good behavior game. However, teachers often struggle to effectively implement such procedures. Promising evidence has emerged for implementation planning as an effective support strategy to improve teachers' intervention implementation. Implementation planning is a one-time consultation process for intervention procedure planning (action planning) and identification and resolution of implementation barriers (coping planning). Although action planning and coping planning are distinct procedures, research to date has only evaluated their effectiveness when delivered together. Two studies were conducted to evaluate the independent effectiveness of action planning and coping planning. Both studies used a multi-phase, multiple baseline design in which participants could gradually receive both implementation support strategies as they implemented the good behavior game. The order in which participants received action planning or coping planning were reversed between Study 1 and Study 2. Results showed that coping planning improved teachers' implementation of the good behavior game. A review of implementation barrier resolutions suggested that coping planning improved the feasibility and fit of the intervention, enhanced teachers' abilities to complete the intervention, and increased procedural knowledge of the intervention.

Introduction

Under the Every Student Succeeds Act (ESSA; ESSA, 2015) and Common Core State Standards Initiative (CCSI, 2010), modern educators are held accountable for student outcomes. The importance of student performance on various district, state, and national measures puts an enormous pressure on teachers to maximize their student's learning opportunities. However, teachers lose significant academic time due to student disruptions. Not only are these disruptions linked to negative academic outcomes for individual students and the class (Bru, 2009; McKinney et al., 1975), it can put students at risk for serious long-term outcomes, such as school dropout, arrest, and legal penalties (American Psychological Association Zero Tolerance Task Force, 2008). One of the most effective ways schools can reduce these negative academic and social outcomes are through the effective implementation of evidence-based classroom management strategies, particularly those based on behavioral principles (Chaffee et al., 2017).

Unfortunately, teacher surveys consistently reveal that many teachers are not receiving comprehensive training in classroom management (Flower et al., 2017) and a significant portion of new teachers report feeling unprepared to manage challenging classroom behavior (Mitchell & Bradshaw, 2013). This is concerning as diminished teacher self-efficacy is related to reduced teacher well-being and increases their risk of burnout (Zee & Koomen, 2016). Although it is recommended that teachers focus their classroom management strategies around proactive, preventive behavior management strategies (Lewis & Sugai, 1999), it is instead found that teachers more often rely on coercive, punitive techniques to address students' problem behavior (Reinke et al., 2013). The lopsided use of punishment strategies strains teacher-student relationships (Mitchell & Bradshaw, 2013) and may disproportionately impact racial and ethnic

minority students who are more likely to receive harsh punishments for subjective behaviors (Skiba et al., 2011).

As part of a push to increase the use of effective, proactive classroom management strategies, many schools have adopted school-wide positive behavioral interventions and supports, a framework that emphasizes the selection and use of empirically-validated proactive strategies for defining, teaching, and reinforcing appropriate student behaviors across all tiers of student support (Sugai et al., 2000). However, school selection of evidence-based classroom management strategies for tier one does not guarantee that they will be accurately and reliably implemented. Additionally, the short professional development seminars that teachers often attend are unlikely to result in improved behavior management skills (Joyce & Showers, 2002). To improve teachers' intervention plan implementation, researchers have developed and examined various support strategies including, goal setting, direct training, test driving interventions, and performance feedback. Although strategies such as direct training and performance feedback have substantial bodies of research suggesting the procedures significantly improve teachers' implementation of new classroom practices (Fallon et al., 2017; Noell, 2008), these strategies can be time intensive and prohibitive on larger scales for many schools. One time-limited teacher implementation support strategy with emerging evidence is implementation planning, a consultative process focused on defining procedural details (action planning) and troubleshooting barriers related to intervention implementation (coping planning; Sanetti et al., 2013).

This study aimed to build upon existing research demonstrating the promise of implementation planning by (a) conducting a component analysis of the implementation support strategy in an attempt to better understand the elements that contribute to its success and (b)

address a significant methodological flaw present in previous studies of implementation planning. Namely, prior studies of implementation planning have changed the independent variable and its measurement across phases. Finally, this study intended to enhance the second component of implementation planning, coping planning, by adding a review of teachers' implementation data to improve upon the identification and resolution of relevant implementation barriers.

Disruptive Student Behaviors

As noted earlier, modern educators are held accountable for student outcomes. Under the Every Student Succeeds Act (ESSA; ESSA, 2015), the federal government mandates that accountability plans be submitted to the Education Department. Furthermore, ESSA mandates that yearly testing for English and Math is conducted in grades 3 through 8 and at least once in high school. For most states, this is done in conjunction with the Common Core State Standards Initiative (CCSI, 2010), which designates knowledge and performance goals for students kindergarten through 12th grade. Data collected for these accountability goals are frequently used as part of teachers' evaluations (e.g., tenure, performance-based-pay; von der Embse et al., 2016). Unfortunately, the stresses that come with such accountability and high stakes testing can have a negative impact on both students and teachers. Researchers who collected data from over 6,000 teachers across four states found that these accountability policies are associated with heightened levels of perceived stress in the school environment by administrators, teachers, and students (Zee & Koomen, 2016). This is in addition to the established direct relationship between teachers' levels of stress and accountability policies (Aloe et al., 2014). Given the impacts of these accountability policies, the efficient use of classroom time for delivering instructional content and promoting academic growth is of significant importance. Unfortunately, disruptive

student behavior is commonplace in the classroom and can divert teachers' efforts to promote academic growth among their students (Cook et al., 2017).

All teachers are faced with disruptive student behaviors regardless of their experience or the grade level they instruct. Teachers are expected to effectively address a wide spectrum of challenging behaviors from mild, such as calling out, seat leaving, and fidgeting/playing with objects to significantly disruptive – and potentially dangerous – behaviors, such as tantrums, physical aggression, and throwing objects. Prior research has demonstrated that behavioral performance and academic outcomes are significantly linked (Hinshaw, 1992; McKinney et al., 1975) such that students with greater disruption are also more likely to have poorer academic outcomes. Frustratingly for teachers, students' disruptive behavior can become cyclical such that challenging behavior and academic underperformance can become self-perpetuating. As described by Scott et al. (2001), disruptive behavior reduces a student's ability to effectively attend to or engage with the academic material. Losing this academic time can result in future academic difficulties. When schoolwork is aversive and beyond a student's abilities, the likelihood that he engages in disruptive behaviors increases (e.g., escape maintained behaviors), thus resulting in additional academic opportunity losses for the student.

Problem behavior also negatively impacts the academic context for others, as these behaviors interrupt classroom instruction and other students' ability to engage with classwork (Cameron et al., 2008). When surveyed, students reported that disruptive classmates make it more difficult to concentrate and they would have had increased opportunities to learn had there been fewer disruptions from fellow classmates (Bru, 2009). The relationship between classmates and disruptive students are often also strained. Researchers have found that children with

hyperactive, impulsive, and oppositional behavior are rated lowly in peer social preferences (Stormshak et al., 1998).

Furthermore, disruptive students are at increased risk of being a part of the infamous "school-to-prison" pipeline. The term describes strict disciplinary practices used by some schools that decrease the probability of student academic success and increases the likelihood of negative life outcomes (e.g., incarceration) through contact with the criminal justice system (Skiba et al., 2014). Students receiving discipline referrals and punitive actions are commonly receiving them due to disruptive behaviors in the classroom (Algozzine et al., 2008). Although strict punitive policies, often referred to as zero-tolerance policies, have been demonstrated to be ineffective, many schools still implement these policies of predetermined punishments (Burris, 2011). Under some of these zero-tolerance policies, one severe infraction (e.g., a physical altercation) or the accumulation of multiple infractions can result in students being removed from schools. This is done under the assumption that such strict policies for school removal will deter problem behavior. However, the evidence suggests that these policies do not reduce challenging behaviors in schools nor do they make schools safer (American Psychological Association Zero Tolerance Task Force, 2008). In contrast, these policies have many negative effects on students.

As one example, research findings show that removing children with problem behavior from school puts them at risk for a range of negative life outcomes, including school dropout, arrest, and judicial penalties (American Psychological Association Zero Tolerance Task Force, 2008; Skiba et al., 2014). These outcomes may be more pronounced for students from some racial/ethnic minority backgrounds who are disproportionately receiving exclusionary discipline. For example, African-American students are approximately three times as likely as White students to get suspended from school (Gregory et al., 2010) and, overall, African-American,

Latinx, and Native-American students receive punishments under zero-tolerance policies at higher rates (Skiba et al., 2014). Additionally, there is emerging evidence that LGBTQ students may be at risk for higher rates of discipline and exclusion (Himmelstein & Brückner, 2011). Therefore, ensuring teachers' use of proactive and effective classroom behavior management practices is a direct step to improving equity within schools and supporting all students' success.

The detrimental effects of challenging classroom behavior are not limited to students. Teachers who have to address significant levels of problem behaviors in their classrooms also report having elevated levels of stress (Klassen & Chiu, 2010). Of particular importance is the effects of challenging student behavior on teachers' self-efficacy, a factor related to both positive and negative teacher outcomes. A review by Zee and Koomen (2016) found that high teacher self-efficacy is consistently associated with higher ratings of improved overall psychological well-being as measured by increased job satisfaction, greater job commitment, and reduced stress. For students, higher teacher self-efficacy was positively linked to students' academic achievement and fewer disruptions. On the other hand, low teacher self-efficacy is associated with increased feelings of emotional exhaustion and depersonalization as well as a decreased sense of personal accomplishment (Aloe et al., 2014; Klassen & Chiu, 2010). These negative emotional outcomes, frequently in response to high levels of student problem behavior, are a significant contributing factor in why many teachers leave the field (Zee & Koomen, 2016). Unfortunately, the schools with student populations that are the most in need of services are the ones in which teachers experience the worst outcomes and have the highest rates of attrition. Though the average yearly teacher turnover rate is 8%, there is significant variability among states and contexts. Alarmingly, rates of teacher turnover are 50% higher in Title I schools,

which have the least resources and higher levels of externalizing and internalizing student problems (Carver-Thomas & Darling-Hammond, 2017; Midouhas, 2017).

Teacher Preparedness and Observed Classroom Management Practices

Reported teacher preparedness. Disruptive behavior problems are associated with a host of negative outcomes including reduced academic achievement (Stormshak et al., 1998), increased likelihood of contact with the justice system (Skiba et al., 2014), and teacher attrition (Zee & Koomen, 2016). Thus, the importance of teachers' abilities to manage classroom behavior and minimize disruptions cannot be understated. However, when surveyed, many teachers often do not feel well prepared or informed on effective classroom management procedures and indicate difficulties addressing challenging student behavior. This can be especially true for teachers early in their careers (Rollin et al., 2008).

One survey comparing the concerns of teachers with less than 3 years of experience to more seasoned teachers found that 19% of new teachers reported difficulties with student behavior, an additional 15% reported being "undecided" as to whether student behavior was a problem for them (Melnick & Meister, 2008). Although lower than new teachers, a significant amount (13%) of the experienced teachers also reported having problems managing challenging student behavior. Teachers also report feeling unprepared because their practice with behavior management is often limited to controlled environments that substantially differ from the schools in which they go on to teach. When in schools, teachers receive little feedback on their performance, further making it difficult to improve their behavior management skills (Melnick & Meister, 2008).

These shortcomings in teacher education and teacher preparedness are particularly concerning given data demonstrating that the majority of teachers work with students who have

behavioral health concerns. Reinke and colleagues (2011) found that 75% of teachers reported working with a student with specific behavioral health concerns. Additionally, the overwhelming majority of teachers reported experiencing the following student concerns during the past year: disruptive behaviors/acting out (97%), problems with inattention (96%), hyperactivity (96%), and defiant behavior (91%). Under the Individuals with Disabilities Education Improvement Act (IDEIA, 2004), teachers will continue having students with special education designations in their classrooms in accordance with the mandate that they are educated in the least restrictive environment. Although students with, or at risk for, emotional and behavioral disorders often have higher rates of problem behaviors than their peers (Reid et al., 2004), they also demonstrate greater positive responses to classroom management strategies that reward rule adherence and prosocial behaviors (Bowman-Perrott et al., 2016).

Teacher preservice training. Given the large literature on the shortcomings in teacher preparedness, there have been various debates over the best way to train educators. This can often be seen in heated dialogue (e.g., Darling-Hammond, 2013) around published issues of the *Teacher Prep Review* put forth by the National Council for Teacher Quality (Greenberg et al., 2013), which rates teacher preparation programs around their standards for effective teacher instruction and classroom management training. It does seem to be agreed that classroom management should be a part of teachers' curricula and the majority of teacher certification programs do include some training on behavior management; however, there remains variation in the quantity, quality and types of management strategies taught.

Flower et al. (2017) collected responses from 74 teacher education program coordinators and found that 87% of programs addressed broad universal methods of classroom management, such as rules, routines, and parent communication. However, when it came to strategies for

reinforcing or reducing targeted student behaviors, significantly fewer programs had such content in their course of study. Strategies to increase appropriate behaviors (e.g., token reinforcement, praise) were included in only 57% of programs. Similarly, strategies to effectively reduce inappropriate behaviors (e.g., time-out, response cost) were covered in only 52% of programs. Thus, it seems that while teachers are receiving training in broad classroom management strategies, many of them are not receiving training on addressing problem behavior that one or more individual students may engage in.

These findings were concordant with prior teacher data that indicate many teachers lacked training in targeted behavioral interventions. For instance, among teachers surveyed by Reinke and colleagues (2013), 21% reported that they had minimal to no training on behavioral interventions. Of additional concern is that only a little over half of the teachers (55.5%) who responded to this survey reported knowledge or understanding of the term "evidence-based practices." This indicates that teachers may also struggle to evaluate strategies and programs for effectiveness, thus making them susceptible to developing strategies and beliefs about behavior management that may be ineffective, or even harmful (e.g., public shaming of students as punishment).

Although there is disagreement about what are the training needs of teachers, especially regarding the classroom management strategies that are important to cover, researchers examining teacher preparedness have found that there is a positive relationship between the completion of behavior management coursework and teachers' reported feeling of preparedness (Christofferson & Sullivan, 2015; O'Neill & Stephenson, 2012).

Teachers' classroom management practices. Although surveys show that a significant portion of teachers are undertrained in behavior management strategies, the majority of teachers

have had some training in classroom management (Christofferson & Sullivan, 2015). These include skills such as creating rules and expectations, teaching procedures, and using reinforcement strategies to increase desired behaviors. However, observations of teachers' actual classroom practice post-training reveal these strategies are often less used than punitive behavior management ones (Reinke et al., 2013; Skiba et al., 1997). Teachers often use punitive strategies such as, but not limited to, public reprimands, verbal threats, office referrals, and suspensions to address problem behavior. Though these strategies may be effective in immediately stopping problem behavior in class (an effect sometimes achieved by removing the student from class rather than changing his or her behavior), it often does not have the preventive effect on future problem behaviors that teachers desire (Mayer, 1995). In fact, exclusionary discipline is only typically effective for temporarily alleviating problem behaviors. It does not prevent future occurrences of problem behavior nor does it prevent the emission of other behaviors of concern. Additionally, when the function of the behavior has not been adequately identified, educators may accidentally reinforce undesired behaviors that are attention or escape maintained (Gresham, 1991).

The asymmetric use of punishment procedures neglects the utility of reinforcement strategies to increase desired behaviors. Research has consistently shown that behavioral outcomes are better when a system of punishment and reinforcement is employed, rather than relying on just one method of behavior change (Lerman & Vorndran, 2002). Relying primarily on punitive behavior systems can also strain student-teacher relationships and create a learning environment where students feel less supported (Mitchell & Bradshaw, 2013). Additionally, African-American, Latinx, and Native-American children are more likely to be punished in subjective situations and receive harsher punishments (e.g., court action) than their White peers

(Skiba et al., 2011; Skiba et al., 2002), which increases their likelihood of negative life outcomes (Skiba et al., 2014).

Effective Classroom Management

Although there is a significant amount of variability in the classroom management training that teachers receive, researchers have developed an expansive literature regarding effective classroom management strategies. In their book, Evertson and Weinstein (2006) define classroom management as the actions teachers take to create a supportive environment for the academic and social-emotional learning of students. They also note that across all theoretical frameworks of classroom management a shared feature is an emphasis on clarifying expected student behaviors and promoting their ability to engage in them. This creates a proactive, preventive system that is likely to be more effective than one that is reactionary to students' misbehavior.

Simonsen, Fairbanks, Briesch, Myers, and Sugai (2008) provided additional specificity to Evertson's and Weinstein's (2006) observation and identified five essential features of effective classroom management: (a) maximizing structure, (b) establishing and teaching positively stated expectations, (c) actively engaging students in instruction, (d) implementing a continuum of strategies to increase appropriate behavior, and (e) implementing a continuum of strategies to decrease inappropriate behavior. These essential features were later updated and organized under three broad domains for effective classroom management (i.e., foundations, prevention, and responses), and subsequently adopted by the U.S. Department of Education (Simonsen et al., 2015). Foundational management strategies provide structure and predictability for the classroom and clarity of expectations for students. Prevention strategies are sustained practices that promote positive student behaviors and reduce the likelihood of problem behavior (e.g.,

provision of high rates of opportunities to respond, behavior-specific praise, and prompts for desired behaviors). Lastly, response strategies are a continuum of consistent and readily enacted procedures for responding to inappropriate behavior that range from least (e.g., planned ignoring) to most (e.g., response cost) intrusive. No single behavior management strategy can satisfy all three recommended domains. Thus, educators should consider how to systematically integrate both antecedent and consequence strategies to create a comprehensive classroom management system.

Recent syntheses of research found that, overall, classroom management interventions have positive results in enhancing students' academic engagement, behavioral functioning (i.e., increased prosocial behavior, decreased problem behavior), and socio-emotional outcomes (Korpershoek et al., 2016; Simonsen et al., 2008). Furthermore, results reveal that behaviorally oriented classroom management strategies are highly effective in improving student classroom behavior (e.g., Tau-U = .93 and Hedges' g = 2.04; Chaffee et al., 2017) across socioeconomic levels, racial/ethnic backgrounds, and cultures; and they are particularly effective for young children and students with significant behavior problems (Korpershoek et al., 2016; Long et al., 2018). Preliminary examinations of the comparative effectiveness of different classwide management approaches suggest that those that are multicomponent and emphasize clarity and promotion of expected behaviors, in large part, through the inclusion of an individual (e.g., token economies) or interdependent group contingency are preferred (Chaffee et al., 2017; Long et al., 2018; Oliver et al., 2011). Although individual and interdependent group contingencies have been shown to be equally effective, group contingencies tend to be more readily implemented as they are procedurally efficient and time effective for teachers (Theodore et al., 2004). With interdependent group contingencies, the contingency applies to all members of a group and

access to the consequence (e.g., free time) is provided to individuals on the basis of the group's behavior meeting a set criterion. One of the most consistently reliable classwide management interventions to produce large treatment effects is an extensively researched interdependent group contingency intervention called the good behavior game (GBG; Bowan-Perrott, Burke, Zaini, Zhang, & Vannest, 2015; Long et al., 2018).

The Good Behavior Game. The GBG is a well-established, interdependent group contingency that aligns perfectly with the recognized key features of effective tier one classroom behavior management practice. The GBG has been researched for over 40 years and has consistently demonstrated positive classroom behavior outcomes with various student populations (Bowman-Perrott et al., 2016; Flower et al., 2014; Tingstrom et al., 2006). In its original format by Barrish et al. (1969), a teacher divided her fourth-grade classroom into two teams and provided them with a set of class rules to follow. The students played the GBG during their math and reading period and anytime a rule violation occurred the teacher placed a mark on the board under the violating team's column. At the end of the game, if both teams were under the five-mark criterion, both received a reward. Otherwise, only the team with the least marks was provided with a reward. The results of this study showed a significant decrease in out-of-seat and talking out behaviors among the students.

Although there have been many variations on the GBG since its original introduction, the core components have remained unchanged. Every iteration of the GBG includes these basic procedures: (a) assigning students to teams, (b) establishing clear behavioral expectations during gameplay, (c) establishing a win criterion, (d) providing frequent feedback during gameplay (e.g., marks, corrective statements, praise), and (e) providing rewards when teams meet the win criterion. Utilizing these procedures, researchers have found that the GBG is effective in

reducing a wide variety of problematic classroom behaviors, including talking out, seat leaving, inappropriate contact with peers (Donaldson et al., 2011; Nolan et al., 2014), verbal and physical aggression, swearing, noncompliance, and tantruming (McGoey et al., 2010). These positive behavioral effects have been evidenced for students in the general education (McGoey et al., 2010) and special education setting (Gresham & Gresham, 1982).

Two recent meta-analyses of the GBG examined potential moderating factors of intervention effects. Flower et al. (2014) examined the impact of the GBG on challenging behaviors across 22 studies and concluded that the GBG had an overall moderate effect on challenging class behavior and multiple methods could be used to effectively train educators to implement the game. Additionally, exploration of potential moderating variables revealed no difference in treatment effects based on student grade level (elementary versus secondary) or the duration of intervention implementation (i.e., short versus longer intervention periods). However, rewards were found to be a critical component for creating desired behavior changes. Bowman-Perrott et al. (2016) extended this research by examining additional variables and including unpublished studies of the GBG. Results from this meta-analytic review indicated that (a) students with or at risk of EBD demonstrated greater behavioral improvements than peers without EBD, (b) students who exhibited disruptive and off-task behaviors showed the most improvement, and (c) using both daily and weekly rewards resulted in larger effects on behavior. As well, reviews of GBG studies reported that the intervention had a positive impact on student academic engagement and that the various alternative versions of the GBG all had similarly positive effects on student behavior (e.g., earning points for rule adherence; Tankersley, 1995; Tingstrom et al., 2006).

Traditionally the GBG has been played by calling attention to rule-breaking. Although this format has consistently been shown to be effective in reducing disruptive behavior, it is not without disadvantages. Because rule violations result in public feedback, peers may ostracize or threaten students whose behavior prevented them from accessing the reward, resulting in unintended negative effects on students' self-esteem and emotional well-being (Tingstrom et al., 2006). Additionally, some students react intensely to negative feedback, increasing the likelihood of classroom disruption. To avoid these pitfalls, some researchers have examined a modification of the GBG that switches the focus to tracking students' rule adherence, rather than rule violations. For this version of the game, students attempt to earn points for demonstrating appropriate behavior and receive a reward contingent upon their team achieving the most points or reaching a preset win criterion, which affords an opportunity for multiple teams to win the game. In their meta-analytic review, Bowman-Perrott et al. (2016) included two studies of this rule adherence version of the GBG (viz. Tanol et al., 2010; Wright & McCurdy, 2012). When comparing this version to the traditional rule-breaking version, the studies of the rule adherence version of the GBG showed comparable or higher effect sizes and were associated with higher implementer social validity ratings. Because the rule adherence version of the game includes verbal recognition in addition to points for appropriate behavior, it also benefits from the more seamless inclusion of behavior-specific praise. Specific praise is a proactive behavior management strategy that has been shown to be effective for increasing correct responses, work productivity and accuracy, on-task behavior, academic engagement, and student compliance (Simonsen et al., 2008). Although the GBG procedures are relatively straightforward, like with most classroom-based interventions, teachers often have difficulty implementing it effectively without targeted implementation support.

Supporting Teacher Implementation

The vast majority of teachers report having concerns about disruptive behavior in their classroom and it is often listed as an area of desired support (Reinke et al., 2011). To enhance their knowledge and skills, teachers often receive continuing education in the form of professional development workshops, conferences, and training sessions during the school year. A survey of teachers during the 2003-04 school year found that more than 9 out of 10 U.S. teachers (92%) had participated in professional development over the past 12 months (Darling-Hammond et al., 2009). However, only 44% of those teachers received training in behavior management at their professional development event. Furthermore, the format of these workshops may not be set up in such a way to make meaningful change. Most teachers report primarily participating in short-term, one-off workshops and conferences. Although these short professional development events may be efficient, the evidence suggests that for most teachers they do not lead to meaningful changes in practice nor improvements in student outcomes (Joyce & Showers, 2002; National Joint Committee on Learning Disabilities, 2000; Yoon et al., 2007).

Even after receiving a high-quality training, such as direct training, implementing new classroom interventions has proven to be difficult for teachers. Behavior change is effortful, and many teachers are already under significant workloads. Though they may genuinely find new intervention strategies beneficial and acceptable, this acceptance does not necessarily translate into successful implementation (Noell et al., 2005). In point of fact, within just a few days of training, it has been found that many teachers struggle with intervention plan implementation (IPI) without systematic implementation support (Noell, 2008). IPI is a measure of the accuracy and consistency of intervention implementation in the natural environment (i.e., how closely actual implementation matches planned implementation of intervention components and

procedures as designed; Noell, 2008). Low IPI is problematic because it is closely linked to intervention outcomes. In general, when IPI is low it significantly increases the likelihood that targeted intervention outcomes will be diminished or unattained (Durlak & DuPre, 2008).

To address this issue, various intervention implementation support strategies have been developed and investigated in schools. These can often be grouped into on-going support strategies and time-limited support strategies. As the name implies, on-going supports are provided to consultees on a continual basis until some determined end criterion is met. One such implementation support strategy is instructional coaching which is a consultative relationship between a teacher and a consultative coach. The goal of instructional coaches is to help teachers incorporate research-based instructional practices through the use of intensive, differentiated training activities that support teachers' implementation of evidence-based practices (Knight, 2007). This includes observation, feedback, modeling, and rehearsal. However, not all school districts hire instructional coaches which may make this an inaccessible resource for some teachers. Additionally, given the intensity of services, meeting with an instructional coach may require more time than some teachers are able or willing to commit to.

The most established on-going support strategy to date is performance feedback, which is the only school-based implementation support strategy that has a systematic line of research demonstrating its efficacy and core components (Fallon, Collier-Meek, Sanetti, Feinberg, & Kratochwill, 2016; Noell & Gansle, 2014). Performance feedback involves a consultant who monitors the target behavior of a teacher and then provides specific feedback to the teacher about the accuracy and quality of his or her behavioral performance (Noell et al., 2005). Performance feedback has been demonstrated as effective for improving teachers' IPI in multiple contexts and with varying modifications (e.g., feedback through e-mail, in conjunction with goal setting, using

negative reinforcement to allow teachers to avoid feedback sessions; DiGennaro et al., 2007), but the features that are consistent in studies with moderate to large effects are individual, in-person discussions of what the teacher is doing well and what needs improvement. Verbal feedback is often accompanied by graphical information, such as a line graph of teacher implementation and student progress (Fallon et al., 2017). Although performance feedback has strong research support and requires less time than instructional coaching, it may still be too resource intensive to be utilized by a school with multiple teachers concurrently.

Time-limited intervention support strategies are those which are designed to be delivered within a pre-constrained period and require fewer resources than on-going support. For example, goal setting (Locke & Latham, 2006) can be limited to one or two meetings. With goal setting, a consultant and consultee meet to discuss current levels of performance and collaborate to develop a specific, attainable goal. A secondary meeting can be scheduled for feedback, however, it is not necessary as consultees are often instructed to self-monitor their own performance. However, the application of goal setting has limited evidence as a standalone implementation support as it is often used in conjunction with on-going techniques such as performance feedback (e.g., Duncan et al., 2013).

Implementation science researchers have considered intervention acceptability to be an important factor of successful intervention implementation (Kazdin, 1980), and evidence for this has been demonstrated (Allinder & Oats, 1997). Dart et al. (2012) developed an intervention support strategy that provides teachers with intervention experiences and is guided by their preferences when selecting an intervention for implementation. In this intervention test drive procedure, teachers receive multiple intervention options and opportunities to implement each intervention. Based on the teachers' preference, one intervention is selected for continued

implementation. Dart and colleagues (2012) demonstrated that teachers had better IPI under these procedures and that student academic engagement corresponded with this increase. However, this evidence is preliminary as the procedure has only one published research study to date. Furthermore, test drive may not be applicable in some situations. For example, teachers often will not have a choice about what classroom interventions to implement as one may be designated as part of their SWPBS. Although these teachers cannot choose their interventions, some will still likely require support.

One prominent time-limited implementation support strategy is direct training, a procedure that emphasizes participant engagement and providing opportunities to teachers to practice implementation and receive feedback. This is in contrast to indirect training, which is often provided to teachers through brief group or didactic trainings focused on information dissemination and is absent of opportunities to practice or receive feedback. Direct training follows the instructional hierarchy model and the goals for participants are skill acquisition, fluency, generalization, and adaption to a variety of contexts. Training can be grouped into 4 core components: (a) description of the intervention, (b) demonstration, (c) participant practice, and (d) feedback (Fallon et al., 2017). This comprehensive, multicomponent process has been demonstrated to be more effective than indirect methods for supporting teacher intervention implementation (Collier-Meek et al., 2016). Furthermore, results from a 2017 meta-analysis concluded that direct training can be considered an evidence-based strategy that effectively promotes teachers' IPI, particularly when written and verbal instructions are provided, modeling is completed in the treatment setting, and when teachers are allowed rehearsal opportunities and receive praise and corrective feedback (Fallon et al., 2017). Given the lengthy and comprehensive qualities of direct training, it may be best reserved for group trainings or if the

planned intervention is complex and would benefit from comprehensive, multicomponent training. For less complex interventions, teachers may achieve equal proficiency with briefer implementation supports.

Finally, a time-limited implementation support strategy with emerging evidence for improving teachers' IPI is *implementation planning*. Implementation planning involves a single consultation session during which a consultant with intervention expertise guides a consultee through a review of the procedural details of intervention implementation and assists with troubleshooting salient implementation barriers.

Implementation Planning

Implementation planning is a component of the Planning Realistic Implementation and Maintenance by Educators (PRIME) model put forth by Sanetti and colleagues (Sanetti et al., 2013; Sanetti, Kratochwill, et al., 2014). This model stems from an understanding of teacher intervention implementation as a process of adult behavior change (Noell, 2008). That is, educators are committing to enact new behaviors in the classroom to promote a more effective learning environment for students. Considering that changing any adult behaviors requires a similar process of moving away from established behavioral routines to novel ones, Sanetti et al. (2013) developed the PRIME model based on a well-established theory of adult behavior change, the Health Action Process Approach (HAPA). The HAPA is a theoretical model of adult health behavior change developed by Schwarzer (2008) that is empirically-supported and parsimonious. The model has not only shown an ability to predict adult behavior change across a wide range of behaviors, but also provides useful guidance regarding specific targets to facilitate the success of the behavior change process (Long & Maynard, 2014).

The HAPA model proposes that there are two critical phases to behavior change: a motivation phase and volition phase. First, an intention to change must be established if behavior adoption and maintenance is to be successful. During the motivation phase, an individual develops an intention to adopt a new behavior or modify a pre-existing one. Developing an intention to change has three critical features: belief that (a) there is a need for behavior change (i.e., risk perception), (b) that the outcomes of the behavior change will be beneficial, and (c) that the behavior change is attainable (i.e., self-efficacy). If any of these components are not present, then it is unlikely that an individual will develop a strong intention to change her behavior and move into the next phase. Once intention is established, behavior change can then be initiated and sustained in the volition phase. The volition phase begins with action and coping planning, which the HAPA model proposes to be the fundamental process that translates intention to successful behavior enactment. The goal of action planning is to develop detailed instructions on how the behavior change will be implemented within the specific target context (e.g., when, where, duration, materials). This is then followed by coping planning, which consists of identifying potential barriers to behavior change and the corresponding strategies to resolve those barriers. Schwarzer described coping planning as an important process to sustain behavioral momentum for new behaviors, as they tend to be fragile and require effortful control. Thus, proactively addressing barriers helps to protect the newly initiated behavior from being supplanted by competing habitual or maladaptive behaviors that are less effortful. The use of action and coping planning has been shown to result in durable behavior change for various health behaviors (Schwarzer, 2008) and findings suggest that the use of these activities together is more effective than the application of either one in isolation (Lippke, Wiedemann, Ziegelmann, Reuter, & Schwarzer, 2009).

The PRIME model adapts these HAPA processes for use in education to support educators' IPI (Sanetti et al., 2013). Under this model, action and coping planning are carried out as one process called implementation planning. Acknowledging the difficulties that teachers demonstrate when implementing new classroom interventions, the developers propose that implementation planning may be most beneficial if conducted before or during the early stages of intervention implementation. As originally designed, the purpose of action planning is to first review the standard intervention procedures and then collaboratively identify any adaptations that may be necessary to facilitate a better match between the intervention and the educator's specific intervention context. Once the procedure has been agreed upon, the implementation plan is recorded (e.g., when, where, duration). This is followed by the coping planning phase which begins with the educator considering potential barriers to effective intervention implementation. Once these barriers have been identified, the consultant and consultee collaborate to develop solutions to these impediments. At the end of implementation planning, the consultant provides the educator with a summary of the session, including their detailed action and coping plans.

One significant difference between the original HAPA model and PRIME is the goal of behavior change. Under the HAPA model, the processes were developed with regard to making behavior change for one's own benefit. Although teacher stress and well-being are related to classroom behavior (Zee & Koomen, 2016), implementation planning differs in that the primary beneficiary of the behavior change is the students. Thus, motivation components become split with perceived risk and outcome expectancies relating to the children while task self-efficacy remains a self-belief. On another note, although it is been proposed that it is ideal for implementation planning to occur prior to intervention implementation, outside of the initial case study (Sanetti et al., 2013), research to date has been limited to examinations of its effectiveness

following intervention initiation (i.e., Fallon et al., 2016; Sanetti et al., 2015; Sanetti, Collier-Meek, et al., 2014; Sanetti & Collier-Meek, 2015; Sanetti et al., 2017).

Outcome data for the effectiveness of implementation planning have been promising. In the first published study of implementation planning (Sanetti et al., 2013), the researchers conducted a case study in which intervention planning was embedded within traditional behavioral consultation. Results of the study showed that the teacher displayed an average adherence to the intervention procedures of 85.01% over 6 weeks, with an average of 79.74% and 76.42% intervention adherence at the one month and two month follow-ups, respectively. Following that study, two additional studies using multiple-baseline designs were conducted to further evaluate the effects of implementation planning on teacher IPI and expected student outcomes. Results of both studies (Sanetti et al., 2015; Sanetti, Collier-Meek, et al., 2014) found that, following implementation planning, most teachers' intervention implementation adherence and quality rose, while variance in these data was reduced. Furthermore, this coincided with positive, expected changes in student behavioral outcomes. However, some participants only showed moderate improvement (e.g., IPI between 50% and 80%).

Recently, Sanetti, Williamson, Long, and Kratochwill (2017) demonstrated that implementation planning resulted in fairly immediate increases in intervention implementation adherence and quality of classwide behavior management plans. A pilot study of a multi-tiered system of support for teacher intervention implementation demonstrated that implementation planning could be feasibly used as a targeted tier two support for teachers (Sanetti & Collier-Meek, 2015). Furthermore, because implementation planning has demonstrated effectiveness as a time-limited intervention implementation support strategy, implementation planning may be a

more feasible option for many school psychologists to employ compared to alternative on-going support strategies.

Purpose of Current Research

Although there is promising preliminary evidence regarding the effectiveness of implementation planning on teachers' IPI, gaps remain in the current literature. These studies extended the existing research by completing a component analysis of implementation planning and addressing a significant methodological shortcoming in previous studies examining the support strategy. To date, no research study has examined the core components of implementation planning in isolation. Although the PRIME model combines action and coping planning procedures into a single implementation support process (i.e., implementation planning), the procedures of action planning and coping planning are distinct. To better understand the underlying mechanisms that drive changes in teacher behavior, it is important that these two procedures be examined separately. Findings from this research could lead to increased efficiency and effectiveness of the process.

The second major purpose of these studies was to address a methodological shortcoming that has been present in most of the implementation planning research thus far. Specifically, that prior studies of implementation planning have changed the independent variable (i.e., the intervention) and its measurement across study phases, violating a cardinal rule of single-case-design methodology. When implementation planning affords the opportunity for teachers to change the selected intervention procedures after the establishment of a baseline of IPI data, it changes the intervention, thus compromising the ability to draw conclusions about teacher behavior change between the baseline and treatment phases.

The above articulated flaw is absent in the first published study of implementation planning (Sanetti et al., 2013) in which it is embedded in a behavioral problem solving consultation and all changes to the intervention are established prior to implementation. However, since then, implementation planning has been conducted following a baseline phase in which the interventions are implemented after receiving traditional consultation. Thus, it seems that there has been a mismatch between how implementation planning was originally conceived and how it has been recently tested. From a strictly methodological perspective, one cannot confidently rule out that any changes in teacher responses, and corresponding student outcomes, are not due to differences in intervention procedures. Procedures in action and coping planning must be restricted in such a way that it increases the confidence that behavior changes are due to the process of implementation planning rather than changes to the intervention. In these studies, this was accomplished by removing the option to make alterations to the intervention and its procedures during the action planning process.

General Methods

Participants and Settings

Participants in these studies were first-grade and second-grade teachers recruited from a charter elementary school in a large urban area in the Southern United States. School demographic information from fall 2018, the most recently published data, reported an enrollment of 524 students and 38 teachers on staff. The student population of the school was 51% male, 92% African American, 6% Latinx, 1% White, 1% other racial/ethnic classifications, and 0% Asian. All students received free lunch through the Community Eligibility Provision. The percent of third-grade students who met or exceeded grade level proficiency expectations on standardized state-wide testing was 30% in English Language Arts and 57% in Mathematics.

A total of six teachers completed the studies: three teachers in Study 1 and three teachers in Study 2. The demographics for each participating teacher and her classroom are described in the participant section of the study specific methods. Recruitment was limited to regular education classrooms and guided by administrator referral. Researchers met with the school's principal and assistant principal to identify teachers that may benefit from the implementation of the GBG. A lead researcher then contacted and met with each referred teacher to provide an overview of the study and obtain informed consent. A total of eight participants were recruited, however, two teachers became ineligible to participate prior to GBG implementation. One teacher switched from a teaching position to a coaching role and academic engagement in the second teacher's classroom was already above optimal engagement (i.e., 90%). Three systematic direct observations of the latter teacher showed the average student academic engagement in her classroom was 91%.

Independent Variables

The two primary independent variables examined in these studies were action planning and coping planning. These independent variables represent the two broad components of the main implementation support strategy under investigation, implementation planning (Sanetti et al., 2013; Sanetti et al., 2015; Sanetti, Collier-Meek, et al., 2014).

Action planning. Action planning is a structured procedure for explicitly planning the logistics of successful intervention implementation. It is typically carried out in a single 20-30 minute session between a consultant with intervention expertise and a teacher consultee (e.g., Sanetti et al., 2013; Sanetti, Collier-Meek, et al., 2014). For these studies, the previously evaluated protocol was adapted for standardized use (PRIME Manual; Sanetti, Kratochwill, et al., 2014, pp. 177-191). Adaptations included a streamlining of the action planning procedure, based on feedback from teachers regarding its cumbersomeness, and the removal of the opportunity for teachers to make modifications to the intervention procedures. The latter adaptation was necessary given that single case design methodology requires consistency in the measurement of outcome variables across the study (in this case teachers' IPI). Typically, during action planning, teachers conduct a procedural review followed by a separate action planning worksheet in which the logistics of each step (e.g., when, for how long, what materials are need) are denoted. Because teachers in the present studies were familiar with the intervention prior to participating in action planning (i.e., experience gained during baseline implementation before support), the procedural review and logistical planning were streamlined into one review. The action planning process in these studies included two main parts: (a) a detailed review of each procedural step of the GBG, including consideration of how to deliver each step accurately and consistently within the teacher's classroom context, followed by (b) an opportunity to address

new procedural questions that may have arisen during the teachers' initial implementation of the game. During part one of action planning, the consultant (the primary researcher) provided a didactic review of each procedural step of the GBG while reviewing how each procedural step was integrated into the teacher's regular ongoing classroom activities. This included reviewing student activities during procedural steps, the use or placement of intervention materials, and how to optimize the use of these materials within the teacher's specific intervention context. Although no exact measurement of the action planning sessions was taken, it is estimated that action planning sessions in these studies were approximately five to ten minutes in duration.

Coping planning. The objective of coping planning is to identify and resolve implementation barriers. As part of the same overarching implementation support method as action planning (i.e., implementation planning), it too is a structured procedure typically carried out in a single session between a consultant and teacher consultee. The previously evaluated protocol, including coping planning worksheet and procedural script, were adapted for standardized use in the present studies (PRIME Manual; Sanetti, Kratochwill, et al., 2014, pp. 177-191). Similar to action planning, the consultant guided the teacher through the coping planning process. First, the consultant defined "implementation barrier" and normalized the teacher's experiences with them. Second, the consultant asked the teacher to think about her implementation of the GBG, identify any experienced implementation barriers (e.g., difficulty consistently reviewing the behavioral expectations), and then rank them based on the degree of impediment they posed to her implementation of the GBG. The teacher could report barriers that impeded her current implementation or would affect her maintenance of the implementation over time. Third, the consultant presented the teacher with her IPI data and collaboratively brainstormed about missed GBG procedural steps (e.g., "It seems like you have difficulty

consistently recognizing the winning teams at the completion of the game. Let's discuss what might be creating this challenge.") if they were not recognized by the teacher in the initial barrier identification. This process could result in the expansion, revision, and/or refinement of the original list of implementation barriers endorsed by the teacher. Finally, the consultant collaborated with the teacher to develop strategies to resolve the barriers outlined on the finalized list. The session concluded with a summary of the agreed upon solutions that was then provided to the teacher. Although no exact measurement of the coping planning sessions was taken, it is estimated that coping planning with the addition of the IPI data review was between 10 and 25 minutes in duration.

Dependent Variables

There were two outcome variables of interest in this study: teachers' intervention plan implementation (IPI) and student academic engagement (AE). The extent to which teachers implemented the GBG was the primary outcome variable for this study and was measured via an intervention checklist that denoted essential components of implementation. Overall class-level student AE was measured using systematic direct observation procedures. The behavioral observation system developed to capture these data was based on the Behavioral Observation of Students in Schools (BOSS; Shapiro, 2004). Student AE was defined as "times when the student is actively attending to the assigned work" (p. 42). Examples of AE included listening and orienting to a lesson, looking at an academic worksheet, writing, reading aloud or silently, raising a hand and waiting patiently, talking to the teacher or other students about assigned material, looking things up that were relevant to the assignment, and listening to a peer respond to a question.

Intervention plan implementation. Direct observation was used to capture the degree to which GBG procedures were adhered to by teachers. Trained observers used checklists that segmented the GBG into fifteen steps. IPI was calculated by dividing the number of intervention steps completed by the total number of intervention steps. The essential steps of the GBG that were monitored included (a) reviewing the rules (i.e., behavior expectations) at the onset of the GBG, (b) announcing the number of points required to win, (c) announcing the prize for winning, (d) delivering 10 points of feedback throughout the game (delivered at approximately 90-second intervals), (e) counting each team's points upon finishing the GBG, and (f) acknowledging the team(s) that won. Each point delivered was counted as a completed intervention step, and point delivery was required to be done in a way that made students aware of the feedback (i.e., visually or auditorily). The researchers of these studies agreed that ten instances of teacher feedback per 15 minutes were a feasible goal. Floress and Jenkins (2015) suggested that 18 to 30 behavior specific praises per hour are desirable and research findings indicate that student behavior improves when teachers deliver six or greater behavior specific praises per 15 minutes (Myers et al., 2011; Sutherland et al., 2000). Teachers were instructed to play the GBG for approximately fifteen minutes, however, if they played for a shorter duration then the expected number of points to be delivered was reduced proportionally. This was calculated by dividing the teacher's implementation duration by 15. For example, a teacher who played the GBG for 11 minutes would be expected to have delivered seven points of feedback instead of ten.

Student behavior. Student AE was recorded by trained data collectors using systematic direct observation (SDO) procedures adapted from the BOSS (Shapiro, 2004) and consistent with those outlined by Cook et al. (2017). SDO data was collected using 15-minute observations

divided into 10-second intervals that corresponded with teachers' implementation of the GBG. Student AE was measured using whole-interval time-sampling. This sampling method was chosen because it is the most conservative measurement (i.e., biases towards underestimation) of increases in behavior. Class-level estimates were obtained by rotating observation intervals with each student in the classroom (starting at the back right) and repeating the process until the end of the observation period. Three observations were conducted per class before the teachers received any intervention training to establish baseline rates of student behavior.

Observation Frequency and Duration

At least three classroom observations were conducted per phase for all study phases. The length of the phases was response-guided based on teacher IPI data. Observations were regularly conducted between two and three times per week and usually 15 minutes in duration. Teachers implemented the GBG during a designated lesson (e.g., whole-group math) that occurred at approximately the same time-of-day each day. This designated lesson, and thus the corresponding observation period, were determined by the teacher. They were instructed to select a time during which they believed implementing a standardized classroom management procedure would be beneficial.

Interobserver Agreement

Prior to data collection, four doctoral students were trained to collect IPI and SDO data. Training included reviewing operational definitions and data collection procedures with one of the lead researchers and then attending a classroom observation with the researcher. During this training observation, the researcher conducted the SDO procedure while the trainee observed his marks and he narrated intervals when a student did not appear academically engaged. The trainee was provided the opportunity to ask questions immediately following the training observation.

The trainee then attended in-vivo data collections during which she independently conducted an SDO and recorded IPI. The trainee's recordings were compared to data gathered by the researcher and the trainee was required to demonstrate 90% or greater interobserver agreement (IOA) on two consecutive observations before being allowed to participate in the study data collection.

Study 1 and Study 2 were conducted concurrently, and the same researcher and trained observers collected data in both studies. Overall, inter-observer agreement (IOA) was collected during 28.7% of observations. Per phase, IOA was collected during 30% of baseline, 28.9% of initial GBG implementation, 28.6% of GBG plus coping planning, and 23.5% of GBG plus action planning.

IOA was determined for IPI and AE. IOA for IPI was calculated using total agreements: the percentage of agreed steps completed out of all steps. The average IOA for IPI was 98% and ranged from 87% to 100%. Per phase, average IOA for IPI was 96.4% for initial GBG implementation, 99.1% for GBG plus coping planning, and 100% for GBG plus action planning. IOA for AE was calculated by using an interval agreement method: the percentage of agreed intervals out of all intervals. The average IOA for AE was 92.8% and ranged from 82% to 100%. Per phase, average IOA for IPI was 89.2% for baseline, 92.8% for initial GBG implementation, 93.9% for GBG plus coping planning, and 96% for GBG plus action planning.

Data Analysis

Visual analysis was used to examine the effects of the implementation supports on teachers' IPI and student AE. Evidence that a support procedure had a functional relationship with the primary dependent variable (i.e., IPI) was demonstrated if prediction, verification, and replication were exhibited in the multiple baseline design graphs. Specifically, a functional

relationship is demonstrated if teacher IPI data does not change in any cases until the introduction of the implementation support (i.e., verification) and the changes in IPI are discrepant from what would be expected if the independent variable was not introduced (i.e., prediction). Lastly, this change should be evidenced across cases upon introduction of the implementation support (i.e., replication). The What Works Clearinghouse Single-Case Design Standards (Kratochwill et al., 2010) defines three demonstrations of a treatment effect as one criterion for establishing a quality design.

Study 1 – Coping Planning First

Participants

One first-grade and two second-grade teachers were recruited from a charter elementary school in a large southern city. The teacher inclusion procedure and school characteristics are reported in the participant section of the general methods. The following participant and classroom demographics data are summarized in Table 1 and Table 2, respectively. Teacher A was a 26-year-old African American female who taught a second-grade class of 23 students. Twenty-one of the students in her classroom were African American and two were Latinx. She held a bachelor's degree, was certified through a traditional teacher certification program, and had five years of teaching experience.

Teacher B was a 27-year-old Latina who taught a second-grade class of 24 students. Twenty-three of the students in her classroom were African American and one was Latinx. She held a bachelor's degree and was an in-training teacher working towards certification through a traditional teacher certification program. She had four years of teaching experience.

Teacher C was a 26-year-old Latina who taught a first-grade class of 23 students. Eighteen of the students in her classroom were African American and five were Latinx. She held a bachelor's degree and was an in-training teacher working towards certification through a traditional teacher certification program. She had four years of teaching experience.

Table 1. Study 1 Participant Demographics

Study 1 Participant Demographics

Teacher	Age	Gender	Race/Ethnicity	Years Teaching	Degree	Certification
A	26	Female	African American	5 years	BA/BS	Completed
B	27	Female	Latina	4 years	BA/BS	In-training
C	26	Female	Latina	4 years	BA/BS	In-training

Table 2. Study 1 Classroom Demographics

Study 1 Classroom Demographics

Teacher	Grade	Total Students	African American	Latinx	Asian	White
A	2	23	21	2	0	0
B	2	24	23	1	0	0
C	1	23	18	5	0	0

Design and Procedure

A multi-phase (A, B, C, D), multiple baseline design was employed to analyze the effects of the two independent variables (i.e., implementation support strategies; action planning, coping planning) on teachers' IPI and student AE. The phase sequence of this study was (A) baseline, (B) GBG, (C) GBG plus coping planning, and (D) GBG plus action planning. Phase change decisions were response-guided, but no phases had fewer than three data points. Participants were only provided a supplemental intervention support strategy if they demonstrated an inadequate pattern of IPI (e.g., a varied IPI averaging less than 80% or a decreasing IPI trend). For example, a participant who maintains IPI greater than 80% after receiving coping planning would not receive action planning.

Baseline. During baseline, the teachers were asked to lead their lessons as they typically would. Observers collected data on student AE using the SDO procedures previously outlined during three, 15-minute observation. The observations were conducted during a lesson the teachers identified as potentially benefiting from a structured classroom behavior management strategy. The length and duration of these baseline observations are based on Ferguson et al. (2012), which found that three, 15-minute observations produced a dependability coefficient of Φ=0.71.

Intervention training. After baseline data were collected, a 45-60-minute group training on the GBG was provided to all participating teachers. Teachers were trained to play the rule adherence version of the GBG in which students receive points for demonstrating specified classroom behaviors. A direct training format was utilized following a tell-show-do structure. Training began with an overview of the GBG procedures and a summary of evidence regarding the benefits of the GBG (i.e., tell). During the training, teachers were provided exemplars of common rules that teachers utilize, how to determine whether an approval mark (i.e., point) should be provided, and shown how to praise rule adherence when providing approval marks (i.e., show). Teachers then actively participated by identifying the behaviors that they wish to see increase in their classrooms, generating three to four positively stated rules that match the identified desired behaviors, and identify potential rewards for students. Teachers were also asked to practice the introduction of the game and providing points with feedback to teams (i.e., do). Teachers were then provided resources for GBG implementation (e.g., timer app, scoreboard). Lastly, teachers were informed that a researcher would be present during their first implementation of the GBG to support them. During the initial implementation, the researcher was available to answer questions while the teacher implemented the GBG and provided prompts if she missed an implementation step. The researcher later provided oral and written feedback to the teacher during her planning period.

GBG implementation. Following the training and initial supported implementation, teachers independently conducted the GBG in their classrooms. Teachers divided the class into two or more relatively equivalent teams based on group size and student classroom behavior. Each GBG began with a review of the GBG procedures, rules (e.g., students must raise their hands and wait to be called on to speak), the number of points required to win, and the available

prize. Teachers could elect a student to review the rules at the onset of each gameplay or review these rules themselves. The win criterion was initially set at four points to make it likely that students would obtain the reward, however, the criterion was set at teachers' discretion during subsequent implementations. At the front of the class, teachers used the whiteboard or a poster to display the rules. The GBG scoreboard was also placed at the front of the classroom on the whiteboard or a poster. Teachers were instructed to play the game for approximately 15 minutes on each implementation and deliver at least ten points. The teacher scanned the room at approximately 90-second intervals and placed a differential mark on the scoreboard for rule adherence (e.g., a checkmark) or rule violation (e.g., an "X") depending on each team's exhibited behaviors at the time. Rule violations were framed as a missed opportunity to earn a point. It was highly recommended that each mark be paired with specific verbal feedback about the teams' behaviors (e.g., "Great job working silently teams 1 and 2; remember to stay silent team 3"). At the end of the game, all teams that met the win criterion were immediately recognized for winning and informed of their reward (e.g., five minutes of free time on the computer at the end of the lesson). If no teams met the criterion, the team with the most points received the reward.

Coping planning. The delivery of coping planning after GBG implementation was response guided. Specifically, a teacher participant received coping planning when a stable or predictable pattern of inadequate IPI (i.e., less than 80%) across at least three data points was demonstrated. After participating in coping planning, the teacher continued her implementation of the GBG during the designated period and IPI and student behavior data were collected as before. The next teacher participants were eligible for coping planning once they displayed similar stable or predictable patterns of inadequate IPI, provided introduction of coping planning was staggered by at least one point based on the preceding teacher's participation in coping

planning. Teachers who demonstrated a stable or predictable pattern of IPI greater than 80% were not provided with any subsequent implementation support strategies (i.e., action planning).

Action planning. The delivery of action planning was dependent on teachers' responses to coping planning and was provided only after a minimum of three data points had been recorded following coping planning. Initiation of action planning followed the same procedure as the initiation of coping planning (e.g., stable or predictable data pattern of inadequate IPI across at least three data points, delivery of action planning staggered by at least one point if the preceding teacher participated in action planning).

Results

Teacher Intervention Plan Implementation. Teachers' observed IPI across phases is presented in Figure 1. During the implementation of the GBG immediately following training, Teachers A (M = 40%) and B (M = 63%) demonstrated a decreasing trend in IPI and Teacher C's (M = 65%) IPI was variable and suboptimal. All three teachers demonstrated an immediate level change increase and flat trend following the introduction of coping planning. Teachers A (M = 89%) and C (M = 96%) demonstrated a high and stable pattern of IPI, however, Teacher B's (M = 82%) IPI was somewhat variable. Teacher B was the only teacher who received an additional implementation support, however, there was no discernable change in her IPI pattern after participating in action planning. Although Teacher B's IPI remained variable after receiving implementation supports, the improvement in level and trend following coping planning indicated a response to the implementation support strategy. Overall, the multiple baseline evidenced a functional relationship between IPI and coping planning. Verification was exhibited as teachers' IPI did not demonstrate a meaningful change before the introduction of the implementation support strategy. Prediction and replication were established as there was a

noticeable change in IPI level and trend across cases, and stable responding in two cases, after participating in coping planning.

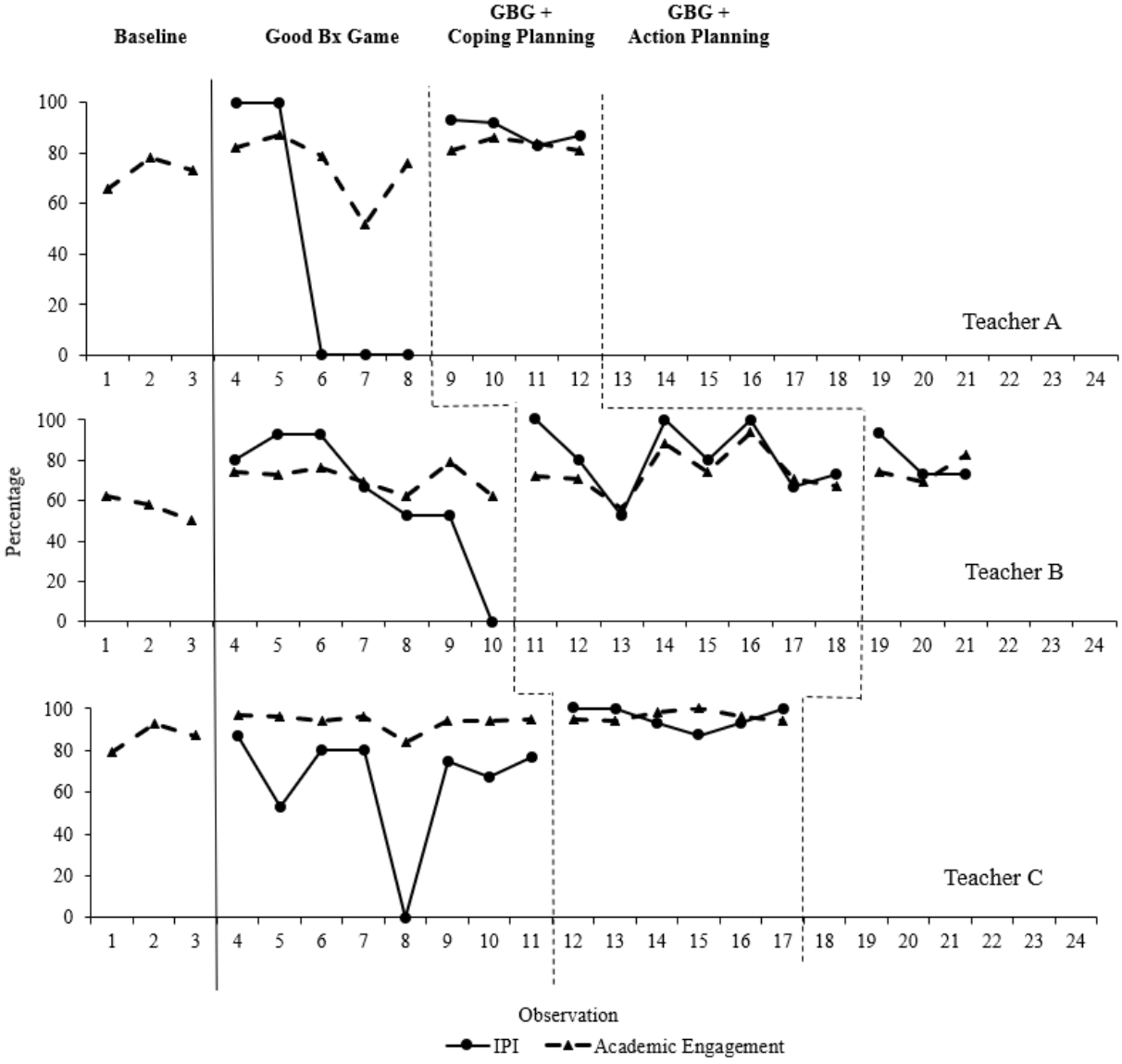

Figure 1. Study 1 Good Behavior Game Implementation and Student Academic Engagement

Student Academic Engagement. During the baseline phase, the AE in the classrooms of Teacher A (*M* = 72%) and C (*M* = 86%) showed a flat trend and Teacher B's (*M* = 57%) class exhibited a declining trend. Therefore, two classrooms displayed fair to good AE during baseline and the third displayed poor AE. Following the introduction of the GBG, there was a marked

change in AE level and trend for Teacher B. Specifically, AE in Teacher B's classroom increased meaningfully and remained fairly steady, with a low degree of variability across all phases and a flat trend line (*M* = 73%). AE in Teacher's C classroom showed a stable and predictable pattern following implementation of the GBG and this pattern remained stable across all phases (*M* = 95%). For Teacher A, there was no notable change in AE following the implementation of the GBG. Instead, AE declined after a few data points and was variable. A stable and predictable pattern of AE did emerge following her participation in coping planning that was in the fair range (*M* = 82%). Overall, there appears to be a relationship between IPI and student AE. However, this relationship was not as clearly revealed as anticipated, which may relate to the measurement procedure used of cycling through individual students. Grossly, results show greater IPI often co-occurring with higher and less variable levels of AE. A full summary of average AE percentages across all teachers and phases is presented in Table 3.

Table 3. Study 1 Average IPI and Classroom Academic Engagement Across Phases

Study 1 Average IPI and AE per phase

	Participant	Baseline	GBG	GBG Plus Coping Planning	GBG Plus Action Planning
IPI					
	Teacher A	-	40%	89%	-
	Teacher B	-	63%	82%	80%
	Teacher C	-	65%	96%	-
AE					
	Teacher A	72%	75%	82%	-
	Teacher B	57%	71%	74%	75%
	Teacher C	86%	94%	96%	-

Study 2 – Action Planning First

Participants

One second-grade and two first-grade teachers were recruited from a charter elementary school in a large southern city. The teacher inclusion procedure and school characteristics are reported in the participant section of the general methods. The following participant and classroom demographics data are summarized in Table 4 and 5, respectively. Teacher D was a 28-year-old White female who taught a first-grade class of 18 students. Sixteen of the students in her classroom were African American and two were Latinx. She held a bachelor's degree and was certified through an alternative teacher certification program (e.g., Teach for America, Relay). She had six years of teaching experience.

Teacher E was a 30-year-old White female who taught a second-grade class of 22 students. Nineteen of the students in her classroom were African American and three were Latinx. She held a master's degree and was certified through a traditional training program. She had six years of teaching experience.

Teacher F was a 25-year-old African American male who taught a first-grade class of 13 students. All of the students in his classroom were African American. He held a bachelor's degree and was certified through an alternative teacher certification program. He had two years of teaching experience.

Table 4. Study 2 Participant Demographics

Study 2 Participant Demographics

Teacher	Age	Gender	Race/Ethnicity	Years Teaching	Degree	Certification
D	28	Female	White	6 years	BA/BS	Completed
E	30	Female	White	6 years	MA/MS	Completed
F	25	Male	African American	2 years	BA/BS	Completed

Table 5. Study 2 Classroom Demographics

Study 2 Classroom Demographics

Teacher	Grade	Total Students	African American	Latinx	Asian	White
D	1	18	16	2	0	0
E	2	22	19	3	0	0
F	1	13	13	0	0	0

Design and Procedure

Study 2 followed the same procedures as Study 1 with one major change: reversing the order of coping planning and action planning. This counterbalance for ordering effects is critical to understanding the independent contribution of action planning and coping planning on teachers' IPI. Specifically, the phase order of Study 2 was (A) baseline, (B) GBG implementation, (C) GBG plus action planning, and (D) GBG plus coping planning. Phase change decisions in Study 2 were the same as Study 1 and no phase had fewer than three data points.

Results

Teacher Intervention Plan Implementation. Teachers' observed IPI across phases are presented in Figure 2. During their implementation of the GBG immediately following training, Teachers D (M = 57%), E (M = 61%), and F (M = 72%) demonstrated variable and suboptimal levels of IPI, and Teacher E exhibited a decreasing trend. Participation in action planning resulted in a positive level change and stability for Teacher D (M = 87%). There was no noticeable change in the IPI patterns for the other two teachers after participating in action planning. Teacher E (M = 39%) continued exhibiting a declining trend and, although Teacher F's mean IPI level increased (M = 81%), there was a significant amount of overlapping data from the previous phase, and his IPI remained quite variable. Teachers E and F received the additional

implementation support strategy of coping planning and both showed an immediate increase in IPI, however, only Teacher F maintained a stable pattern of IPI (*M* = 91%). Teacher E evidenced a decreasing trend after the first two observations. Although she did not demonstrate a stable pattern of adequate IPI after receiving both implementation support strategies, Teacher E's initial improvement in IPI following coping planning suggested that there was a response to the implementation support strategy, though the support was insufficient to promote a high and sustained level of IPI. Teacher E consistently provided points to GBG teams during observations, but her marks often went unnoticed by the students as they were frequently provided discretely while students were focused on an academic activity. The GBG protocol stated that students should be made aware of earned or missed points, thus, Teacher E's IPI was often suboptimal though she made sufficient marks on the GBG scoreboard. During coping planning, Teacher E reported that point delivery interrupted her students during round robin read aloud and listed it as a significant implementation barrier. The devised barrier resolution was to wait until students switched readers. Teacher E initially made this change in her intervention implementation, but it was not sustained. Thus, an ongoing support would likely be necessary for implementation to be consistent.

Student Academic Engagement. During baseline, the AE in the classrooms of Teacher D (*M* = 77%) and Teacher E (*M* = 89%) were relatively stable; AE in Teacher F's classroom (*M* = 56%) was variable. The introduction of the GBG resulted in a level change for all three teachers and a stable pattern in the classrooms of Teacher D (*M* = 91%) and Teacher E (*M* = 95%). AE in Teacher F's classroom showed stability only after he participated in coping planning (*M* = 91%). Similar to the results in Study 1, the relationship between IPI and AE was not as evident as anticipated. These findings may relate to the measurement procedure used of

cycling through individual students, and they may also indicate the potency of the GBG. One study found that even when teachers played the GBG with poor scoring accuracy (i.e., did not consistently provide rule violation marks when problem behaviors were exhibited), reductions in student problem behaviors were still equal to or greater to researcher conducted implementations with high accuracy (Joslyn & Vollmer, 2020). A full summary of average AE percentages for all teachers across phases is presented in Table 6.

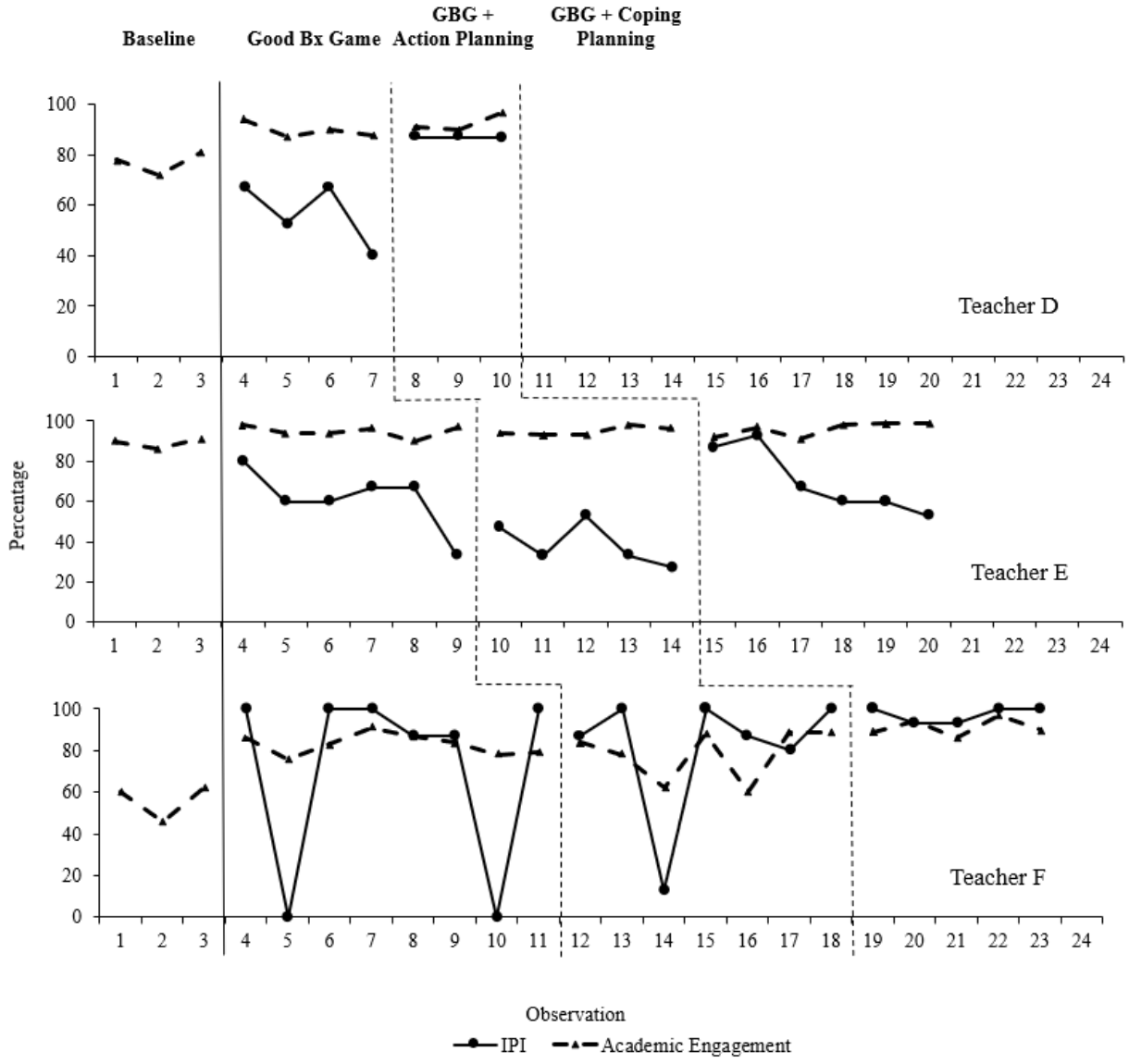

Figure 2. Study 2 Good Behavior Game Implementation and Student Academic Engagement

Table 6. Study 2 Average IPI and Classroom Academic Engagement Across Phases

Study 2 Average IPI and AE per phase

	Participant	Baseline	GBG	GBG Plus Action Planning	GBG Plus Coping Planning
IPI					
	Teacher D	-	57%	87%	-
	Teacher E	-	61%	39%	70%
	Teacher F	-	72%	81%	97%
AE					
	Teacher D	77%	90%	93%	-
	Teacher E	89%	95%	95%	96%
	Teacher F	56%	83%	79%	91%

General Discussion

Managing student behavior is often difficult for teachers as many struggle with effective classroom management (Flower et al., 2017). Disruptive behaviors not only negatively affect student academic engagement, and thus academic outcomes, but can also pose a threat to equitable student outcomes. Researchers have found that students from African American, Latinx, and Native American backgrounds are more likely to be punished in ambiguous situations compared to their White peers and those punishments are often more severe (Skiba et al., 2011). Classroom management procedures like the GBG have a robust evidence-base showing positive effects on decreasing student misbehavior and improving academic engagement (Bowman-Perrott et al., 2016; Flower et al., 2014). However, training alone is unlikely to result in sustained adherence to intervention procedures (Joyce & Showers, 2002). Preliminary evidence suggests implementation planning, a brief, time-limited implementation support strategy, may be effective in promoting teachers' IPI (Sanetti, Collier-Meek, et al., 2014), increasing both the mean level of IPI and decreasing IPI variability. However, as an emerging support strategy, there still exist important gaps in the research literature.

Prior studies of implementation planning have lacked an examination of its two distinct components, action planning and coping planning. In the present studies, two multiphase, multiple baselines were conducted in which modified action planning and coping planning procedures were examined independently. The effects of these implementation support strategies on teachers' implementation of the rule adherence version of the GBG, and the corresponding effects on student academic engagement, were examined. Teachers in the multiple baselines were eligible to receive up to two distinct implementation supports (i.e., action planning and coping planning) depending on their response to a given support strategy. Following training and

an initial implementation with support, all teachers demonstrated difficulty implementing the GBG consistently with adequate IPI (i.e., 80% or greater). Study 1 participants first received coping planning and Study 2 participants first received action planning. During action planning, the teachers participated in a review of the GBG procedures and the logistics of its implementation in their classroom followed by an opportunity to ask questions about implementation procedures that may have emerged since starting the GBG. During coping planning, teachers were asked to think about how the game typically occurs in their classroom, identify barriers that have made implementing the GBG difficult, and collaboratively develop plans to remediate the identified barriers.

Examining both studies, five teachers evidenced improved IPI following coping planning, and one showed a high and sustained response following action planning. In Study 1, a positive relationship between IPI and coping planning was demonstrated. All three teachers evidenced an immediate level increase and flat trend after receiving coping planning. Teachers A and C exhibited a high and stable pattern of IPI; Teacher B's IPI averaged above 80% but was somewhat varied. The additional implementation support of action planning was provided to Teacher B, but she did not evidence any decreased variability in her GBG IPI. This suggests that action planning may not provide any additional benefits beyond coping planning.

All teachers in Study 2 received action planning and two received the additional support of coping planning. The results did not evidence a relationship between action planning and IPI but were suggestive of a positive effect from participating in coping planning. Only Teacher D showed a noticeable change in IPI after participating in action planning and Teachers E and F continued to exhibit suboptimal and varied levels of implementation. A review of Teacher D's action planning session suggests she benefited from the procedural review provided during the

meeting. Of her three classroom teams, Teacher D often provided points to only one or two of the teams at a time. It was reviewed that she should provide feedback to all teams when giving points and she demonstrated this correction in subsequent implementations of the GBG. The other two teachers exhibited an immediate increase in IPI when provided the additional implementation support of coping planning, but teacher E showed suboptimal implementation and a negative trend after the second observation.

Teacher F demonstrated an adequate and stable pattern of responding following coping planning, however, the characteristics of his baseline data limit the interpretation of any positive effects from coping planning. Eight observations were conducted during Teacher F's initial implementation of the GBG and he demonstrated greater than 80% IPI on all but two observations. It was revealed during coping planning that he did not implement the GBG in those observations because the students were engaged in a class activity he believed to be incompatible with the GBG. Specifically, students played a group based academic game which differed from the instruction they typically received. Teacher F and the consultant developed a procedure to keep the points for his academic game and the GBG separate. Though the researchers hypothesize this coping planning procedure had a positive effect on Teacher F's implementation as he was later observed using the GBG while students participated in an academic game, the comparison of the trend and level of his baseline data to GBG plus coping planning does not evidence a strong experimental effect.

Considering Study 1 and Study 2 altogether, these results indicate that coping planning had a positive effect on IPI, particularly when there was a pronounced potential benefit for intervention. These results did not support a functional relationship between action planning and

IPI and it may be that its procedures are less relevant when an empirically-supported direct training procedure is used.

Teachers in these studies participated in a 45-60-minute direct training procedure that included an overview of the GBG procedures, modeling of the procedures, rehearsal of the procedures, and in-vivo feedback on their first implementation. Direct training procedures such as these are more effective in promoting initial IPI than indirect training (Sterling-Turner et al., 2001) and may have reduced the necessity of action planning in these studies. Most teachers did not ask questions after the procedural review and action planning was consistently completed between approximately five and ten minutes. Because teachers readily provided implementation barriers during coping planning, their lack of questions may indicate confidence in their knowledge of the procedures rather than a shortage of engagement. Action planning may be helpful when there is a need to improve procedural knowledge, as was demonstrated with Teacher E. As teachers more often receive indirect training (e.g., didactic reviews), which is less effective at increasing procedural knowledge compared to direct training, action planning may show greater benefits in naturalistic applications.

The present studies' results are consistent with the conceptualization of behavior change put forth by implementation planning, which was adapted from the HAPA model (Schwarzer, 2008) of adult behavior change to the school setting. These models propose that behavior change is made more likely when the implementation steps are explicitly planned and potential barriers to enacting the behavior change are addressed. Teacher D's improved IPI suggests that action planning may be helpful when implementation errors are related to procedural knowledge about the intervention. However, overall, consistent improvement in teachers' IPI occurred only following coping planning, which did not include an explicit procedural review nor logistical

planning. These results suggest that identifying implementation barriers and corresponding resolutions alone may be beneficial to improving consultees' IPI, particularly if they have been effectively trained on the intervention. The researchers hypothesize that coping planning may be an efficient procedure for identifying and addressing logistical barriers. For example, Teacher A identified and resolved a barrier related to the use of token rewards delivered through a digital classroom behavior tracking system (i.e., ClassDojo) during coping planning. She reported having difficulty consistently providing the reward quickly after finishing the GBG because it was time-consuming to deliver points to the individual students. The collaboratively developed resolution to this barrier was to set up groups in the digital point system to increase the ease and speed of delivering points to students. This preliminary evidence indicates that, when provided with adequate training, teachers can identify and attend to salient logistical difficulties without explicitly reviewing and completing logistical planning for each implementation step.

The omission of a procedural review and logistical planning may result in a significant reduction in consultation duration. The time to complete implementation planning appears to have a wide range with one study estimating 18 to 22 minutes (Sanetti et al., 2015) and another reporting an average of 59 minutes (Sanetti et al., 2017). One article provided averages for action planning and coping planning, stating they were completed in an average of 31.33 and 9.33 minutes, respectively, and the total time to complete implementation planning was 40.67 minutes (Sanetti, Collier-Meek, et al., 2014). Unfortunately, the precise duration of coping planning was only captured with two teachers during this research project. Teacher B completed coping planning in 22.47 minutes and teacher C completed coping planning in 11.83 minutes. It was estimated that coping planning with Teachers A, E, and F also ranged between 10 and 25 minutes in duration. Although these data are incomplete, it suggests that logistical concerns can

be effectively addressed during coping planning while still maintaining a relatively brief meeting period.

Another gap in the implementation planning research is a methodological shortcoming present in many previous evaluations. Often in prior studies, implementers have been allowed to modify intervention steps following the initial implementation and baseline data collection. This opportunity for modification makes it difficult to evaluate the effects of implementation planning on IPI as the intervention components, and what researchers are measuring, may differ between the initial intervention implementation phase and intervention implementation following implementation planning. In the initial evaluation of implementation planning (Sanetti et al., 2013), researchers proposed the procedure as a support strategy to be used before intervention implementation. Thus changes in intervention procedures were already established before researchers measured IPI. However, subsequent studies have proposed and examined implementation planning as a time-limited support strategy to be provided after the initial intervention implementation, resulting in this methodological shortcoming. As most studies have examined implementation planning after intervention initiation, this methodological shortcoming has been present in the majority of the research.

These current studies sought to address this drawback by removing the opportunity to adjust the intervention steps during action planning and coping planning. Despite the shortcomings of prior research, the results of these studies suggest that coping planning, and potentially action planning for some, can have a positive effect on IPI for procedural steps that are held consistent across phases. An examination of the barrier resolutions developed in these studies suggested that implementation barriers, even when they are the same for two or more teachers, may be remediated in distinct ways.

Most frequently, implementation barrier resolutions attended to improving the feasibility or fit of the intervention. For example, teachers often identified competing tasks (e.g., introducing the lesson, picking up assignments) as a barrier to reviewing behavioral expectations, the goal criterion, the available prize, or teams' final scores. Most teachers' resolutions to improve the feasibility of these steps was to assign a student (e.g., the daily "class leader") to complete these reviews. Another barrier identified by two teachers was the disruption caused by point delivery. One teacher described her desire to avoid interrupting students who were reading aloud to announce that teams had earned or missed a point. To make point delivery more feasible, the teachers devised a reminder procedure to deliver student feedback when there was a natural pause in the class activity. A different barrier identified by a teacher who used auditory reminders to deliver points was the shuffling and movement of her students to be on-task at the sounding of the reminder. Her solution was to place her phone on vibrate and hold it in her hand throughout the GBG. Teachers' improved IPI after addressing the feasibility and fit of the intervention is consistent with prior research identifying contextual compatibility as a significant factor in successful intervention implementation (Durlak & DuPre, 2008).

The other developed resolutions could be categorized as either enhancing teachers' implementation ability or improving procedural knowledge. One teacher who had difficulty consistently reviewing the behavioral expectations increased her performance of this step by assigning a student to remind her to conduct the review. Also, as previously discussed, Teacher A improved her ability to deliver an electronic reward by creating groups in the electronic point record system (i.e., ClassDojo) to distribute the prize more easily. Lastly, one implementation resolution was related to a procedural accommodation of the GBG. A teacher reported that it was occasionally difficult to play the GBG because a disruptive student sometimes frustrated his

teammates. Although it was reviewed in the initial training that a disruptive student could be placed on his own team to reduce negative peer relations, the teacher had forgotten about this procedural adaptation. This was reviewed and she agreed it would be an effective barrier resolution. Overall, these studies provide early evidence that coping planning alone may be beneficial for improving intervention feasibility or fit, enhancing teachers' ability to complete intervention steps, and increasing procedural knowledge.

The barrier resolutions developed in these studies were similar to those shown in prior research. An analysis of teacher survey data by Long et al. (2016) found that the majority of reported implementation barriers related to characteristics of the intervention itself (e.g., intervention compatibility, time/duration required). Almost all barrier resolutions developed in these studies addressed improving the ease of implementing the GBG and increasing its compatibility with classroom activities. Other common barriers such as insufficient time to prepare, implementation duration, and materials/resources required were not expressed by teachers in these studies, which may indicate that they found the time and resources needed to implement the GBG feasible. Collier-Meek et al. (2019) conducted an exploratory analysis investigating implementation barriers and barrier resolution strategies identified by 33 teachers during implementation planning for classroom management practices. Results showed that the top four strategies to address reported barriers were (a) reteaching the intervention (21.82%), (b) reviewing the intervention (12.73%), (c) incorporating prompts (12.73%), and involving others (12.73%). Though strategies from the latter three categories were devised during coping planning meetings in the present studies, no teacher suggested that she would need to relearn the intervention, further supporting the benefits of direct training previously discussed.

The present studies also contribute to the robust research literature demonstrating the positive student effects of the GBG (Bowman-Perrott et al., 2016; Flower et al., 2014). Teachers were asked to play a version of the GBG where students were provided points for rule adherence. Compared to the traditional version of the GBG where students are given marks for rule violations, GBG for rule adherence has been less frequently examined in research (Tanol et al., 2010). These studies were also conducted in a Title 1 school where most classroom students were ethnic/racial minorities. These populations are infrequently included in validation studies of classroom management procedures (Long et al., 2019), which is problematic given the racial/ethnic diversification trends of schools in the United States. Furthermore, the implementation of evidence-based classroom management strategies may have the highest potential benefit as majority minority schools tend to have greater reported rates externalizing and internalizing student difficulties (Midouhas, 2017). On average, classrooms in these studies exhibited a 15% improvement in student AE. Teacher F's classroom demonstrated the largest improvement from an average of 56% AE in baseline to 83% after the introduction of the GBG; teacher E demonstrated the smallest change with an average of 89% AE in baseline to 95%. In essence, the more room for improvement possible the greater the gains made as a result of intervention implementation. Across classrooms, the stability of the students' AE often corresponded to the stability of teachers' GBG IPI, however, student engagement did improve for Teacher B, D, and F even when their IPI trends were variable or decreasing. One explanation for this is could be that implementation steps are not equally weighted in terms of their influence on intervention outcomes. For example, consistently providing points for desired behaviors during gameplay but missing pre-game prompts may have a greater positive effect on AE than consistently delivering pre-game prompts but missing points during gameplay. Additionally, the

need to cycle through students to gain reliable observational data was likely not as sensitive to change than if it were possible to capture increases in AE or decrease in off-task behaviors for the class as a whole (i.e., all students simultaneously).

Limitations and Future Directions

There are limitations to every study. One notable limitation is a lack of screening to exclude teachers with high student AE. Based on school administration preferences, teachers recruited for these studies were referred by the school administration and participated based on interest. Although a target of this study was to bring all classrooms up to consistent optimal levels of engagement (i.e., 90% or greater), teachers who already have high levels of AE are likely already using effective classroom management strategies and may be less inclined to implement a different set of strategies or procedures. This was evident with Teacher E who reported experiencing more negative interactions with students after starting the GBG. She expressed that she typically ignored minor misbehaviors and disliked informing students that they missed an opportunity to earn a point during GBG implementation. Furthermore, teachers with high levels of student engagement may also be less motivated to conduct a prescribed intervention procedure as the potential for behavioral improvement is limited, and potentially not meaningful. Future research should attempt to limit participants to those with more pronounced intervention needs.

Teacher E also illustrated another shortcoming of these studies' designs. Although she exhibited a response to coping planning, she did not achieve adequate and stable IPI. Although the researchers hypothesize that Teacher E would have benefited from an on-going support strategy such as performance feedback, the results of these studies fall short of demonstrating

that she could have achieved adequate and stable implementation if provided an on-going and highly evidence-based implementation support.

It should also be noted that although the action planning and coping planning strategies used in these studies share many procedural similarities with those evaluated in previous research and developed by Sanetti and colleagues (2013), modifications for these studies make them distinct procedures. During action planning in these studies, participants were not given the option to change any intervention steps and they did not complete a logistical planning procedure separate from the procedural review. For coping planning, modifications were made to promote teachers' identification of implementation barriers (e.g., prompting them to think about how the GBG normally looks in their classroom, using performance data to identify frequently missed intervention steps). These changes limit the comparisons that can be drawn to action planning and coping planning as conducted during the implementation planning procedure previously evaluated (e.g., Sanetti, Collier-Meek, et al., 2014). Additional research using the original action and coping planning protocols should be conducted to determine the benefits of those individual components in comparison to those same components modified in the current research. The researchers hypothesize that action planning as previously conducted during implementation planning may result in more consistent improvements in intervention implementation than demonstrated by the action planning process in these studies. Action planning as in the original protocol explicitly attends to logistical barriers through the action planning worksheet, which was not a part of the action planning procedure in these studies. The coping planning protocols as originally developed would likely have comparable results to the procedures used in these studies if implementers are provided with adequate training. Although coping planning in these

studies included a data review, teachers were often able to identify salient implementation barriers before this review was provided.

Another notable limitation was the lack of consistent measurement for action planning and coping planning duration. Myers et al. (2011) proposed that intervention support strategies could be provided to teachers within a similar response-to-intervention framework that is used to deliver interventions to students. Sanetti and Collier-Meek (2015) conducted a pilot study with promising results for the utility of organizing and delivering intervention support strategies on a continuum of intensity primarily based on duration. Therefore, it is important that future evaluations of these implementation support strategies account for the time required to prepare and conduct them.

Conclusion

Effectively managing classroom behavior is critical to facilitating a conducive learning environment for students. The current studies provide evidence that a time-limited implementation support strategy, coping planning, can improve teachers' adherence to a classwide behavior management procedure. Results showed that a one-time meeting between a consultant and teacher to collaboratively identify implementation barriers and corresponding resolution strategies resulted in improved implementation of the GBG. These studies were also notable because they were conducted in a Title I school with majority ethnic/racial minority classrooms, populations that are infrequently represented in classroom management validation studies (Long et al., 2019). Given the high workloads that educators experience, time-limited implementation support strategies can be an efficient use of resources to help improve teachers' implementation of behavior management strategies. This is especially important as schools adopt positive behavior intervention supports and expect teachers to skillfully implement classwide

behavior management procedures in addition to their academic duties. Some researchers have proposed that intervention implementation supports can be efficiently delivered to teachers under a response-to-intervention framework of increasingly intensive strategies (Myers et al., 2011). Future research should examine coping planning with other classroom management strategies and its feasibility within a continuum of teacher implementation supports.

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Appendix A: IRB Approval

ACTION ON EXEMPTION APPROVAL REQUEST

Institutional Review Board
Dr. Dennis Landin, Chair
130 David Boyd Hall
Baton Rouge, LA 70803
P: 225.578.8692
F: 225.578.5983
irb@lsu.edu
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TO: James Upright
Psychology

FROM: Dennis Landin
Chair, Institutional Review Board

DATE: September 24, 2018

RE: **IRB#** E11231

TITLE: A component analysis of implementation planning: Examining mechanisms that underlie a teacher implementation support strategy

New Protocol/Modification/Continuation: New Protocol

Review Date: 9/24/2018

Approved X **Disapproved**_____

Approval Date: 9/24/2018 **Approval Expiration Date:** 9/23/2021

Exemption Category/Paragraph: 1; 2b

Signed Consent Waived?: No

Re-review frequency: (three years unless otherwise stated)

LSU Proposal Number (if applicable):

By: Dennis Landin, Chairman Dlandin

PRINCIPAL INVESTIGATOR: PLEASE READ THE FOLLOWING –
Continuing approval is CONDITIONAL on:

1. Adherence to the approved protocol, familiarity with, and adherence to the ethical standards of the Belmont Report, and LSU's Assurance of Compliance with DHHS regulations for the protection of human subjects*
2. Prior approval of a change in protocol, including revision of the consent documents or an increase in the number of subjects over that approved.
3. Obtaining renewed approval (or submittal of a termination report), prior to the approval expiration date, upon request by the IRB office (irrespective of when the project actually begins); notification of project termination.
4. Retention of documentation of informed consent and study records for at least 3 years after the study ends.
5. Continuing attention to the physical and psychological well-being and informed consent of the individual participants, including notification of new information that might affect consent.
6. A prompt report to the IRB of any adverse event affecting a participant potentially arising from the study.
7. Notification of the IRB of a serious compliance failure.
8. **SPECIAL NOTE: When emailing more than one recipient, make sure you use bcc. Approvals will automatically be closed by the IRB on the expiration date unless the PI requests a continuation.**

* *All investigators and support staff have access to copies of the Belmont Report, LSU's Assurance with DHHS, DHHS (45 CFR 46) and FDA regulations governing use of human subjects, and other relevant documents in print in this office or on our World Wide Web site at http://www.lsu.edu/irb*

Appendix B: Systematic Direct Observation Form

Systematic Direct Observation Form: Classroom Observation

Teacher ID: _____ Observer Name: _____ Date: _____ Time: _____ Ob#: ___

Student Practices

1. **Academically Engaged (ENGAGED):** Instances when the student is paying attention to instruction by attending to the teacher or speaker or working on an the assigned academic activity (e.g., raising hand and waiting patiently, talking to the teacher or other student about assignment, reading, completing worksheet, participating in group activity)
    a. **Coding:** Whole interval recording – mark if the student is academically engaged for the entire interval
2. **Off-Task:** Behaviors that are not permitted and/or not directly associated with an assigned academic task and disrupts the learning or classroom environment (e.g., out of seat, hitting, talking to peers during instruction).
    a. **Coding:** Partial interval recording – mark if the student is engaged in off-task behavior at any point during the interval

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Interval →	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	Total	IOA Sum
ENGAGED																		
OFF-TASK																		

Interval →	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	Total	IOA Sum
ENGAGED																		
OFF-TASK																		

Interval →	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	Total	IOA Sum
ENGAGED																		
OFF-TASK																		

Interval →	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	Total	IOA Sum
ENGAGED																		
OFF-TASK																		

Interval →	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	Total	IOA Sum
ENGAGED																		
OFF-TASK																		

Interval →	81	82	83	84	85	86	87	88	89	90	Observation Complete	Total	IOA Sum
ENGAGED													
OFF-TASK													

GBG Checklist

__ 1) Reviews Rules
__ 2) Reviews Goal
__ 3) Announces Prize
__ 4) Delivers 10 points of feedback during the 15 minutes of GBG (10)
__ 5) Counts team points
__ 6) Announces winners

Treatment Integrity = ___ / 15

Vita

James J. Upright completed his Bachelor of Arts in Psychology at North Carolina State University in May 2012. During his undergraduate studies, James was part of a research team providing reading intervention (Helping Early Literacy with Practice Strategies) to elementary students. After graduation, James was a research assistant at 3C Institute in Durham, North Carolina where he assisted with the research and development of computerized social skills training programs.

James was accepted to the Ph.D. program in School Psychology at Louisiana State University in 2015 under the mentorship of Dr. Anna Long. He completed his predoctoral internship at Cypress-Fairbanks Independent School District in June 2020 and was accepted to the postdoctoral fellowship at Cypress-Fairbanks. James is interested in psychoeducational assessment, school-based interventions to promote students' behavioral and emotional well-being, and supporting the implementation of evidence-based practices by teachers, school staff, and parents through consultation.